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DEPOSITORY

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FRANCIS BAILY, Esq. Vice-President, in the chair.

Alfred Wrigley, Esq. B.A. Mathematical Master at the East India Military College, Addiscombe, and Mark Noble, Esq. Head Master of the School, Albion House, Worcester, were balloted for, and duly elected Fellows of the Society.

The following communications were read :—

I. On an Instrument adapted for observing Right Ascensions and Declinations of Stars independently of time, accompanied by Drawings made with the Camera Lucida by Captain Basil Hall, R.N. By M. Wettinger. Communicated, with a Letter of Description, to Sir J. F. W. Herschel, Bart., by Capt. Basil Hall, R.N.

The instrument contrived by M. Wettinger is so fully described in Captain Hall's letter, that an independent abstract of M. Wettinger's paper is unnecessary. The following is a copy of the letter, dated Malta, Dec. 6, 1841 :—

" My dear Sir John,—I have had my attention lately called to an invention which appears to me so ingenious, and grounded upon such good principles, that I think a description of it may interest you, and perhaps be considered by you as worthy of being brought to the notice of the Astronomical Society. Of this, however, you are the best judge; and I shall, therefore, merely give you the means of examining the pretensions of the instrument. In this view I have made three sketches of the model with the camera lucida, and I have added to each the same letters of reference to the same parts. I transmit to you also the opinion of Carlini, of Milan, and of his colleagues, as to this instrument, which was submitted to their examination some time ago.

" I may begin by stating that the chief object of the instrument is to determine the difference of right ascension between any two stars, without the agency of time as an element, the equatoreal angular difference between them being measured directly, *in arc*, on an hour-circle, graduated in degrees and minutes for that purpose. It is true that *time* does enter as an element into the principle of the instrument, inasmuch as a certain part of the machinery is moved by clock-work, in the manner used in many equatoreals; but this agency is purely mechanical and subsidiary, and does not require that the absolute time should either be exactly known, or its march be exactly kept.

" The instrument is essentially an equatoreal arc, in its struc-

ture,— that is to say, its principal axis is directed to the pole, and it carries a telescope capable of being directed to any star which is above the horizon, (I should mention, in passing, that the clock-work machinery is not included in the model; and there may be observed some other mechanical omissions, it not having been thought worth while to encumber either the model or the description with more details than are necessary to an explanation of the principle and workings of the instrument).

"The principal or polar axis of the instrument is made hollow— in fact, is a telescope, having at its upper extremity a small reflector or speculum capable of being directed at any angle into the tube of this axis telescope. The object-glass of this telescope is fixed not at its extremity, but about half way between the upper end and the centre. At the centre there is placed another reflector, which stands at an angle of 45° with the length of the tube, to receive the image of a star formed by the object-glass from the rays reflected from the upper speculum. The side of the axis telescope is perforated, in order to allow the image of the star which is reflected from the central speculum to pass into the middle of another telescope, which, for distinction, may be called the *declination telescope*, as it is attached to, and carries with it, a declination circle. In the middle of this declination telescope there is fitted a very small reflector, at an angle of 45° to its length, on which the image of the star reflected from the central speculum is received and transmitted to the eye of the observer, in every position of the declination telescope.

"The further arrangements of the instrument will, perhaps, be more readily understood by describing the manner of using it, than by giving a detailed explanation of the parts.

"In commencing an observation, the upper speculum is directed to a standard star of the first or second magnitude, partly by moving it on its own axis of rotation, so as to direct the rays into the principal axis telescope, and partly by the equatoreal motion, either of the whole apparatus, or by the rotatory movement of the principal axis, by means of the declination telescope. This motion, I may mention by the way, of the principal or polar axis, may be made at pleasure, independently of a large frame-work attached to the instrument, which is moved by the clock-work. There is an hour-circle in the plane of the meridian, fixed to this outer frame-work, and another circle fixed to the lower extremity of the polar axis, which may be clamped or freed from that which belongs to the framework. The speculum, at the other extremity of the axis, is so contrived that it moves along with the frame-work.

"It will, therefore, be understood that, if the upper speculum be so directed towards a star, that the rays reflected from it pass down the polar axis telescope, they will be received and reflected, first, from the central speculum, and secondly, from the speculum in the declination telescope, to the eye, in whatever position the declination telescope may be. Now, if the hour-circles be clamped, so as to form one, and the frame-work be put into gear with the clock-

work, the whole will move round at the rate observed by the heavens, and, consequently, the image of the star reflected from the upper speculum will continue in the centre of the field of the declination telescope, for any required length of time, and in every possible position of that telescope.

" Suppose, now, that the relative position of the equatoreal circle, fixed to the frame, and that carried by the polar axis, be carefully ascertained by reading off their graduated circumferences, by microscopes or otherwise, and that then the circle carried by the polar axis be unclamped, that axis will be left free to revolve and to carry with it the declination circle, and likewise the declination telescope, but without interfering with what may be called the *celestial movement* of the frame, or that of the upper speculum, which, by going along with, continues to reflect the rays from the star to which it was originally directed; and, consequently, to preserve the image of that star constantly in the centre of the field of the declination telescope. This declination telescope is now directed to any other given star whatsoever, the image of which, viewed directly, is to be brought into coincidence with that seen by reflection from the upper speculum. If now the equatoreal circles be clamped, and a second set of readings be made, it is obvious that the difference between the two will be the difference, in arc, of the right ascensions of the stars.

" When the observation commences, the declination telescope is directed to the standard star, as well as the upper speculum, so that the images, seen direct and by reflection, are made to coincide in the centre of the field of view of the declination telescope. The graduations of the declination circle are then read off, to be compared with those when the second observation is made, or that of the star whose place is to be determined. The difference of these readings will give the difference of the declinations of the two stars, in the same manner that the difference of the readings of the two concentric hour-circles (as they may be called) at the lower end of the polar axis, gives the difference of the right ascensions.

" If clock-work machinery be not in such perfect adjustment as to keep the standard star, first observed, correctly in the centre of the field of view, it may be brought to that point by a tangential movement of the frame-work, to be made by hand, at the moment of making the second observation, without in any respect vitiating the integrity of the observation, for this small movement does no more than compensate for any error in the going of the clock.

" As it may not be always convenient to move the whole frame which is attached to the clock-work, the upper speculum, at the upper end of the axis, is so fitted as to be capable of being turned round independently of the frame, to which it is fixed by a moderately stiff collar. This movement, which may be made roughly by hand, or more nicely by a tangent screw, enables the observer, without stopping the clock-work machinery, to direct the speculum to any given standard star; and I may observe that only those of the first and second magnitudes are named for this purpose by M. Wettinger, as he fears the light lost by the three successive re-

flections might render any less brilliant stars invisible. This, however, does not affect stars viewed through the declination telescope, which looks directly to its object, and is supposed to be capable of seeing small stars as readily as large ones.

" Observations for determining the differences of right ascension and declination, in arc, between a standard star and any other, both being above the horizon, may be repeated as often as required; and it does not appear how, supposing the machinery perfect, any error can enter into these determinations, except what arises from the false position in which refraction places celestial objects. In the determination of right ascensions by an instrument placed in the meridian, this source of error is avoided; but it remains in full force as to declinations. The question with respect to right ascensions, therefore, resolves itself chiefly (if I rightly understand M. Wettinger) into the fact of its being both easier and more exact to determine the difference of right ascension in arc, by a leisurely and direct observation of the angle formed by the two meridians in which the stars lie, than to *infer* that difference of arc by the uncertain agency of a clock, which is further vitiated, he thinks, by the uncertainty of marking the exact moments when the stars respectively pass the wires of the meridian instrument. To these sources of error he adds that of the ear in appreciating the beats of the clock.

" M. Wettinger is of opinion that, although only experience can determine the degree of accuracy with which such an instrument could give the desired results, very fair estimates may be formed by practical astronomers familiar with the difficulties and errors of the existing methods, of the probable advantages of his invention. Whether, for example, the effects of refraction on stars above a certain altitude, on their right ascensions and declinations, are not sufficiently well known to admit of such exact corrections being applied to the determinations made by his instrument, as would render their results more worthy of confidence than those made with the existing instruments. It being taken into account, also, that, while only one observation can be made in the day on all stars which are not circumpolar, and only two on some of those which never set, with an instrument fixed in the meridian, the number of observations which may be made with M. Wettinger's instrument is unlimited; and as these observations might be made at all altitudes from that when the stars passed the meridian to the moment of their rising or setting, many curious inferences might possibly be deduced from it on the subject of refraction, while the observations might be so arranged as to counteract the vitiating effects of refraction, and, by the combination, to give correct results.

" It would seem that this instrument would be very useful in determining the place of a comet by direct observation, instead of inferring it, as is usual, even with an equatoreal instrument. For this purpose any standard or other star sufficiently brilliant to bear the triple reflection may be used.

" It will be observed in Signor Carlini's report, that, a doubt having been expressed as to the possibility of applying the prin-

ciple of this instrument to the sun, M. Wettinger, in order to try the experiment, fixed the small reflector or speculum of his model to the great equatoreal at Milan, in such a way that, while *Sirius* was observed *directly* by the telescope, the image of the sun, duly darkened and submitted to one reflection, was observed in the same apparent direction; and both, as he informs me, with such perfect precision, that the star could be seen on the disk of the sun, or be brought in contact with the limb with the utmost certainty.

"It will be observed that Signor Carlini and his colleagues, in their report, advert to the multiplicity of parts and variety of movements in M. Wettinger's instrument, as contrasted with the fixed nature and simple operations of the large meridian instruments now in use. But still they appear to be disposed to look with a favourable eye to the capabilities of M. Wettinger's invention, and they seem anxious that one of sufficient dimensions should be made; but for this, in their opinion, there are no means in Italy, and they recommend Munich or Vienna. Why not London?

"M. Wettinger is of opinion that prisms of glass might probably be substituted with advantage in place of the reflectors.

"As I may probably have omitted some material points in this explanation, I have requested M. Wettinger to draw up a description of it in Italian, the only language which he speaks; and I have asked him to employ the same letters of reference which I have used, so that the same sketches may do for both.

"I ought to add, that M. Wettinger is one of the professors of the university established here, and that he has long been highly esteemed for his knowledge and ability, and he is a person well acquainted both with the principles and the practice of astronomy.

"Should you wish it, or should you think it would prove interesting to the Astronomical Society, to see the model which M. Wettinger has constructed, I have no doubt he would readily allow it to be sent to England; or should you wish any further information respecting it, you will do him a favour by writing to him at Malta. I shall not be here above a month longer, as I go on to Egypt with my family in January; but M. Wettinger being fixed to this spot, will always be available. — I remain, &c.

"Basil Hall."

II. A Letter from Professor Henderson to the Secretary, dated Edinburgh, January 31, 1842, on the Determination of the Parallax of α *Centauri*, by recent Observations made by Mr. Maclear at the Cape of Good Hope.

"My dear Sir, — Within these few days, I have received from Mr. Maclear a series of observations of α^1 and α^2 *Centauri*, made with a view to ascertain the parallax; and I find that they confirm the existence of a parallax amounting to about one second. The observations are of the double altitudes of the stars made with the mural circles, and they extend from April 16, 1839, to August 12, 1840. Twenty-six observations of the double altitude of each star were made with the old circle between April 16 and June 16,

1839; and 108 observations of the double altitude of α^1, and 112 of α^2, were made with the new circle between August 4, 1839, and August 12, 1840. In each observation the star was observed both by direct vision and by reflection at the same transit. The results which I have obtained are as follow:—

"From the 272 observations made with both circles,

Parallax = 0″·91. Weight 147·93 observations.
Coefficient of Aberration = 20·55. —— 142·47 ——

"From the 220 observations made with the new circle,

Parallax = 0″·92. Weight 138·81 observations.
Coefficient of Aberration = 20·53. —— 127·97 ——

"The observations made with the old circle extend over too short a period to warrant any results being deduced from them alone for parallax and aberration which could be relied upon.

"On computing the observations of each star separately, I find for α^1:—

"From the 134 observations made with both circles,

Parallax = 0″·86. Weight 70·37 observations.
Coefficient of Aberration = 20·61. —— 70·02 ——

"From the 108 observations made with the new circle,

Parallax = 0″·91. Weight 65·83 observations.
Coefficient of Aberration = 20·54. —— 63·71 ——

"And for α^2:—

"From the 138 observations made with both circles,

Parallax = 0″·96. Weight 77·55 observations.
Coefficient of Aberration = 20·48. —— 72·44 ——

"From the 112 observations made with the new circle,

Parallax = 0″·93. Weight 72·99 observations.
Coefficient of Aberration = 20·52. —— 66·27 ——

"If the coefficient of Aberration be assumed = 20″·36, as in the Astronomical Society's Catalogue, then, from all the observations with both circles, parallax = 0″·98, the separate results for the two stars being 0″·95 and 1″·00; and, from all the observations with the new circle, parallax = 0″·99, the separate results being 0″·98 and 0″·99.

"I believe that the observations are still continued to be made at the Cape; and I will write to Mr. Maclear immediately, requesting him to send the additional observations.

"The two stars appear to be approaching each other, the difference of declination being in 1826 = 18″, in 1833 = 15″, and in 1840 = 11″. When all the observations are collected, an attempt may be made to determine the orbits, and thence the masses of the stars.

"I will as early as possible prepare a detailed memoir on the subject, and transmit it to the Admiralty for presentation to the Astronomical Society.— I am, &c. "T. Henderson."

III. Positions of 78 Fixed Stars contained in the A. S. C., represented by Mr. Baily as not determined with sufficient accuracy, deduced from Observations made with the Meridian Circle of the Observatory of Kremsmünster. By M. Köller, Director of the Observatory.

IV. Observations of Falling Stars made at Hereford on the night of Nov. 12, 1841. By Henry Lawson, Esq.

Three observers were employed in watching for these phenomena, from seven o'clock in the evening till half-past four o'clock of the following morning, each taking a distinct portion of the heavens. The whole number observed was 79, and the greatest number observed in any one hour was 20, between the hours of three and four in the morning. The result the author considers to be so far satisfactory, that it tends to confirm the fact of the appearance, at about this period, of a greater number of meteors than usual.

V. A List of Falling Stars observed Nov. 12, 1841, at St. Helena. By J. H. Lefroy, Esq. R.A. Director of the Magnetic Observatory at Longwood.

The whole number observed was 102, between the hours of eight in the evening and five of the following morning. The Greenwich mean solar time of the appearance of each is noted to the nearest second, and the place of its appearance as referred to the bright stars nearest it. The direction of the motion of each is also given, with remarks on its appearance, rapidity, and other circumstances connected with the phenomenon.

VI. Path of the Moon's Shadow over the Southern Part of France, the North of Italy, and part of Germany, during the Total Eclipse of the Sun on July 7, 1842 (July 8, *Civil Time*). By Lieut. W. S. Stratford, R.N.

During the total eclipse of the sun on July 7, 1842, the moon's shadow will pass over Spain, the south of France, the north of Italy, and part of Germany; and it may induce travellers and others in those countries to prepare for the observation of this important phenomenon, if the means of so doing be furnished.

The following table has, therefore, been computed to enable them to trace the path of the moon's shadow on a large scale, and with very considerable accuracy.

It contains for each minute, from $17^h\ 34^m\ 39^s$ to $17^h\ 46^m\ 39^s$, mean astronomical time at Greenwich, the geographical positions (the longitudes being reckoned from Greenwich) of points on the earth's surface, where the following phenomena occur.

1. Contact of the upper limbs of the moon and sun.
2. Contact of the centre of the moon and sun.
3. Contact of the lower limbs of the moon and sun.

Greenwich Mean Time.	Northern Line.		Central Line.		Southern Line.	
	Long.	N. Lat.	Long.	N. Lat.	Long.	N. Lat.
h m s	° ′	° ′	° ′	° ′	° ′	° ′
17 34 39	3 44 W.	40 57	0 15 W.	41 26	2 3 E.	41 29
35 39	0 5 W.	42 30	2 49 E.	42 39	4 36 E.	42 31
36 39	2 43 E.	43 37	5 5 E.	43 34	6 48 E.	43 22
37 39	5 2 E.	44 31	7 4 E.	44 22	8 46 E.	44 6
38 39	7 5 E.	45 18	8 59 E.	45 3	10 33 E.	44 45
39 39	8 58 E.	45 59	10 44 E.	45 42	12 12 E.	45 21
40 39	10 40 E.	46 36	12 22 E.	46 16	13 46 E.	45 53
41 39	12 17 E.	47 10	13 53 E.	46 47	15 14 E.	46 23
42 39	13 50 E.	47 41	15 21 E.	47 17	16 38 E.	46 51
43 39	15 16 E.	48 10	16 43 E.	47 43	18 0 E.	47 16
44 39	16 40 E.	48 36	18 3 E.	48 9	19 19 E.	47 40
45 39	18 2 E.	49 1	19 24 E.	48 32	20 35 E.	48 2
17 46 39	19 20 E.	49 25	20 38 E.	48 55	21 49 E.	48 23

The connexion of the several points in (1) will trace out the northern limiting line of total eclipse; those in (2) the central line; and those in (3) the southern limiting line of total eclipse.

To indicate some of the principal places over, or near to, which the shadow will pass, a small map, on Mercator's projection, is annexed; representing the table from 43° to 49° of north latitude, and from 1° to 21° of east longitude. The transverse curve-lines represent arcs of vertical circles; and for the same moment of time, inserted above them, their intersections with the north, central, and south lines respectively, represent the phenomena numbered 1, 2, 3, previously explained.

The central line will pass

North of Marseilles	0° 28′	or	32·2 miles.
South of Turin	0 27	or	31·0 —
North of Genoa	0 38	or	43·7 —
South of Milan	0 20	or	23·0 —
North of Verona	0 24	or	27·6 —
South of Vienna	0 32	or	36·9 —
North of Buda	0 58	or	66·8 —

The beginning of the total eclipse at a place on the central line being the contact of the eastern limbs of the moon and sun, and the ending the contact of the western limbs, the interval representing the duration of the total eclipse at any point will be about $2^m{\cdot}4$.

Should the darkness be sufficiently intense, as has been sometimes the case during total eclipses of the sun, to render some of the planets and brighter stars visible, the planet *Mercury* may be looked for about 5° south of the sun and moon. The planet *Mars* about west by north, *Mars* being 15^m of right ascension to the west, and 1° 16′ of declination to the north of the sun and moon.

The planet *Venus* is below the horizon until the shadow has passed Vienna, and will scarcely be visible at the eastern limit of the map. *Jupiter* and *Saturn* are invisible, being below the horizon during the whole interval. The *Georgian* is $7^h\,13^m$ of right ascension to the west, and 23° 53′ to the south of the sun and moon.

The sun and moon are in the constellation *Gemini*, and will have *Castor* and *Pollux* not far distant in a N.N.E. direction; *Ursa Major* to the northward and eastward; *Procyon* to the south and east; *Orion* to the south and west; *Taurus* to the west; and *Auriga* and *Perseus* to the north and west.

Those persons who wish for more detailed information regarding the circumstances and phenomena of solar eclipses, will be amply gratified by consulting *A Memoir relative to the Annular Eclipse of the Sun, which will happen on Sept.* 7, 1820, by Francis Baily (London, 1818); the works therein referred to, viz. *Phil. Trans.* vol. xxix. p. 245, vol. xl. p. 177, vol. xlv. p. 582, &c. &c.; and a paper by the same author, in the tenth volume of the *Memoirs of the Royal Astronomical Society*, "On a remarkable Phenomenon that occurs in Total and Annular Eclipses of the Sun."

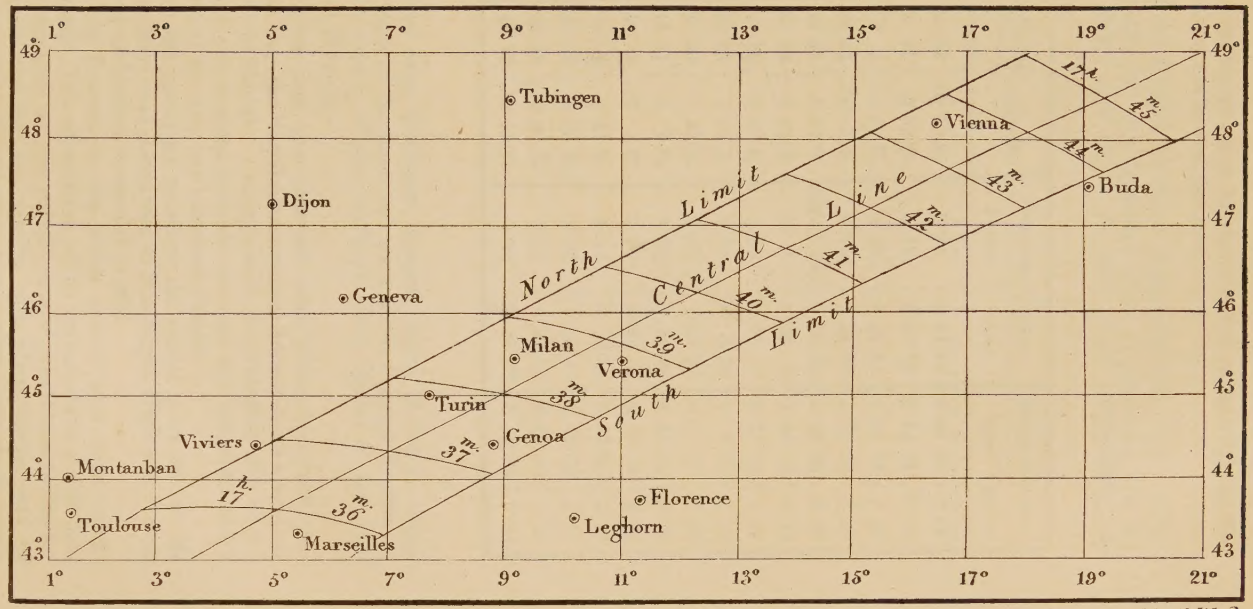
The memoir alluded to, though unfortunately not printed for sale, was circulated with the author's known liberality so widely, that there is little doubt of its being to be found on the shelves of the libraries of persons who feel interested in these matters.

Since the preceding matter was in type, a copy of Professor Silliman's *Journal of Science and Arts*, for January 1842, has arrived from America, containing an article "On the Solar Eclipse of July 8, 1842" (*civil reckoning*), from which the following is extracted, as meriting particular attention:

"As the approaching eclipse will excite great interest throughout Europe, and especially in those places where it will be total, it is earnestly hoped that particular attention will be paid by those favourably situated, and in possession of suitable instruments, to the determination of the correctness of a recent suggestion, that the irregularities so frequently noticed at the second and third contacts of nearly central eclipses, and at all the contacts of the transits of *Venus*, may be seen or not at the pleasure of the observer, according as the colour of the dark glass he applies to his telescope is red or green. These irregularities, as seen by many, have been minutely described by Francis Baily, Esq. of London, in an article in the tenth volume of the *Memoirs of the Astronomical Society*, although it particularly relates to the appearances, observed by himself, in the south part of Scotland, during the eclipse of May 15th, 1836, which was annular there. Many of the appearances described by Mr. Baily were seen through a *red* glass at the second and third contacts of the eclipse of Feb. 12th, 1831, which was annular in the south-eastern part of this State. Shortly afterwards, however, it having been ascertained that a double screen, composed of one light red and one light green glass, would not only render the light of the sun very

pleasant to the eye, but would far better define the limbs, and would sometimes even enable me to see a small spot, that was invisible through the dark red alone, a screen of that kind was adapted to the telescope, and was used for the partial eclipses of 1832 and 1836, and those that were central in 1834 and 1838. Through this screen no one of the irregularities described by Mr. Baily has ever been perceived, although carefully looked for. Indeed, so remarkable was the difference between the observed and expected appearances of the sun's limbs at the second and third contacts at Beaufort, S. C. on Nov. 30th, 1834, that even then a suspicion was excited that the entire absence of all distortion or irregularity in the cusps, just before and after the total obscuration, was to be attributed to the colour of the screen, especially since other observers in the vicinity of Beaufort saw through red screens many or most of the usual phenomena. This suspicion was strengthened by the observations on the large, but not central, eclipse of May 1836; it was, therefore, communicated to several of our astronomers, who paid particular attention to it, at the formation and rupture of the ring on Sept. 18th, 1838. In Philadelphia and its vicinity there were many observers, provided with telescopes of nearly equal optical capacity, but protected by screens of different colours. The result appears to be, that in every, or nearly every instance, in which the red glass was used, many or all of the usual irregularities were seen, whilst those observers who used yellow or green screens saw these appearances either greatly modified or not at all. At Princeton, near the northern boundary of the ring, two skilful astronomers, provided with $3\frac{1}{2}$-feet telescopes by Dollond and Fraunhofer, were enabled distinctly to see some of these appearances through the red eye-piece of the former, though none was visible through the green screen of the latter instrument. At Washington, where the eclipse was nearly central, no distortion of the limb of the moon could be seen through the double screen above mentioned, and the cusps of the sun, just before and after the ring, were as pointed as needles. The Committee of the Philosophical Society of Philadelphia, in their report on this eclipse, say, 'This suggestion is one of great importance, as it seems to furnish evidence of the existence of a lunar atmosphere, through which, as through our own, the red rays have the greatest penetrative power. It also leads to new views concerning the cause of the remarkable appearances of the beads of light and the dark lines frequently noticed; since it shews that their appearance may be completely modified by a change in the colour, and, consequently, in the absorbing power of the screen glass through which they are observed.' It is believed that on another account will this suggestion, if well founded, be of great importance, viz. in its obvious tendency to diminish, if not wholly remove, the discordancies not unfrequently found in the best observations on solar eclipses and transits of *Venus*, and which, with regard to the latter in 1761 and 1769, were so great as

PATH OF THE MOON'S SHADOW OVER THE SOUTH OF FRANCE, NORTH OF ITALY, AND PART OF GERMANY, DURING THE TOTAL ECLIPSE OF THE SUN ON JULY 7. 1842.



North Latitude.

East Longitude from Greenwich.

materially to diminish the value of this method of determining the distance between the earth and the sun.

" Phases of the Eclipse at some of the principal Cities of Europe." The longitudes are reckoned from Greenwich, and the times indicate *mean civil times*, at each place respectively, on July 8, 1842.

	Latitude, North.	Longitude.	Beginning of Eclipse.		Ending of Eclipse.	
			Partial.	Total.	Total.	Partial.
	° ′	° ′	h m	h m s	h m s	h m
Brescia.....	45 32	10 13 E.	5 24	6 19 18	6 21 44	7 21
Genoa	44 24	8 54 E.	5 18	6 12 53	6 14 31	7 14
Gratz	47 4	15 27 E.	5 46	6 43 14	6 45 44	7 48
Lemberg	49 52	24 3 E.	6 25	7 24 33	7 27 24	8 33
Madrid.....	40 25	3 42 W.	bef. ⊙ rise	5 18 45	5 20 30	6 16
Marseilles.....	43 18	5 22 E.	5 3	5 57 3	5 59 5	6 57
Milan	45 28	9 12 E.	5 20	6 15 4	6 17 18	7 17
Nice.....	43 42	7 17 E.	5 11	6 5 36	6 6 52	7 6
Padua	45 24	11 52 E.	5 30	6 26 28	6 27 56	7 29
Pavia	45 11	9 9 E.	5 20	6 14 28	6 16 52	7 17
Presburg.....	48 8	17 6 E.	5 54	6 51 44	6 54 14	7 57
Turin	45 4	7 42 E.	5 14	6 8 35	6 10 34	7 10
Venice.....	45 26	12 20 E.	5 32	6 28 49	6 29 33	7 31
Verona.....	45 26	10 59 E.	5 27	6 22 26	6 24 40	7 25
Vienna.....	48 13	16 23 E.	5 51	6 48 58	6 50 55	7 54

VII. A letter from Professor Hansen, dated March 1, 1842, in acknowledgment of the communication of the Foreign Secretary, announcing the award of the Society's Gold Medal at the last Annual General Meeting.

" Sir,— I have just now received your letter, by which you announce to me that the Royal Astronomical Society have honoured me with their Gold Medal. I recognise in it a valuable sign of the kind attention of this Society towards me and my labours; and I beg you to present to them my sincerest thanks.

" Pray have the goodness to allow the medal to be sent to M. Prætorius, Secretary and Librarian of His Royal Highness Prince Albert, who will undertake to send it to me.

" Of late my labours in the lunar theory have been considerably advanced. The calculation of the perturbations is finished, and I am now engaged on the calculation of provisional tables for the purpose of comparing my results with observations, and of determining the correction of the elliptic elements which result from them. I am now giving to these tables the necessary extension,

that they may afterwards serve as definite tables, after having applied to them the necessary corrections which are required by the new determination of the elliptic elements. To combine with exactness in these tables the most convenient mode of calculating the places of the moon, I have chosen the form that M. Carlini has given to the tables of the sun, as much as it is possible to do so. However, the labour of calculation of the tables themselves is much increased by this arrangement.

"Repeating my request that you will present my respects to the Royal Astronomical Society, I beg you will accept the sentiment of high consideration with which I have the honour to be, &c.

"P. A. Hansen."

The Chairman announced to the Meeting that Mr. T. Jones has signified his intention of immediately returning to the Society the *Beaufoy* Transit, which is at present in his possession.

London: Moyes and Barclay, Castle Street Leicester Square.